

AMENDMENTS TO CLAIMS

1. (Canceled)

2. (Currently amended) An optical information recording method of an optical information recording and reproduction device that uses a semiconductor laser to record or reproduce data in an optical recording medium, said optical information recording method comprising a step of:

adjusting a calculated value of optimum recording power for recording data or an object value of recording power when data are being recorded, based on a detected value of an optical path difference of the optical recording medium; and

~~The optical information recording method as claimed in claim 1, wherein when~~ calculating the optimum recording power before recording data in the optical recording medium, an optimum index indicating the optimum recording power is corrected with respect to a predetermined first index based on the detected value of the optical path difference of the optical recording medium, and the corrected optimum index is used as the calculated value of the optimum recording power, said predetermined first index being obtained by reproducing a trial write region that is recorded with recording power being varied stepwise.

3. (Original) The optical information recording method as claimed in claim 2, wherein a value of the predetermined first index is an asymmetric value equaling a ratio of a difference between a maximum and a minimum of a direct current component of a reproduction signal from the trial write region to a sum of the maximum and the minimum.

4. (Currently amended) An optical information recording method of an optical information recording and reproduction device that uses a semiconductor laser to record or reproduce data in an optical recording medium, said optical information recording method comprising a step of:

adjusting a calculated value of optimum recording power for recording data or an object value of recording power when data are being recorded, based on a detected value of an optical path difference of the optical recording medium; and

~~The optical information recording method as claimed in claim 1~~, wherein an object index indicating the optimum recording power is corrected and updated continually based on the detected value of the optical path difference of the optical recording medium with respect to a predetermined second index, and the corrected object index is used to correct the optimum recording power while recording, said predetermined second index being obtained from a detection signal associated with an amount of light reflected from the optical recording medium when data are being recorded in the optical recording medium.

5. (Previously presented) The optical information recording method as claimed in claim 4, wherein a value of the second index is an average value of the detected signal associated with the amount of reflected light or a sample value of the amount of reflected light when forming a recording mark normalized by the recording power.

6. (Currently amended) An optical information recording method of an optical information recording and reproduction device that uses a semiconductor laser to record or reproduce data in an optical recording medium, said optical information recording method comprising a step of:

adjusting a calculated value of optimum recording power for recording data or an object value of recording power when data are being recorded, based on a detected value of an optical path difference of the optical recording medium; and

~~The optical information recording method as claimed in claim 1~~, wherein an initial value of the optical path difference of the optical recording medium is obtained by reading out information of the optical path difference of the optical recording medium or information of a distribution of the optical path difference of the optical recording medium from pre-format information to calculate a detected value of the optical path difference before the data are recorded or when the data are being recorded.

7. (Currently amended) The optical information recording method as claimed in claim 2, wherein a change of the optical path difference is calculated from the amount of light reflected from the optical recording medium; and the first index or ~~[[the]]~~ a second index is corrected by a conversion unit according to the change.

8. (Currently amended) The optical information recording method as claimed in claim 2, wherein the first index or ~~[[the]]~~ a second index is corrected by using a detected value of a detection unit for detecting an elliptically polarized light beam component of the light reflected from the optical recording medium.

9. (Currently amended) The optical information recording method as claimed in claim 2, wherein the first index or ~~[[the]]~~ a second index is corrected by using a detected value of a temperature or a change of the temperature near the optical recording medium based on desired temperature dependence.

10. (Currently amended) An optical disk used as an optical recording medium in an optical information recording and reproduction device, said optical disk being recorded by said optical information recording and reproduction device, and wherein said device uses a semiconductor laser to record or reproduce data, and wherein the device adjusts a calculated value of optimum recording power for recording data or an object value of recording power when data are being recorded, based on a detected value of an optical path difference of the optical recording medium; and

wherein the device obtains an initial value of the optical path difference of the optical recording medium by reading out information of the optical path difference of the optical recording medium or information of a distribution of the optical path difference of the optical recording medium from pre-format information to calculate a detected value of the optical path difference before the data are recorded or when the data are being recorded; and with
~~information by using the information recording method as claimed in claim 6,~~

wherein information indicating an optical path difference of a trial write region assigned to the optical disk or distribution information of the optical path difference of the optical disk in a radial direction is formed in advance as recording condition information or recording management information among pre-format information of the optical disk.

11-12. (Canceled)

13. (Previously presented) The optical information recording method as claimed in claim 5, wherein a change of the optical path difference is calculated from the amount of light

reflected from the optical recording medium; and the first index or the second index is corrected by a conversion unit according to the change.

14. (Previously presented) The optical information recording method as claimed in claim 5, wherein the first index or the second index is corrected by using a detected value of a detection unit for detecting an elliptically polarized light beam component of the light reflected from the optical recording medium.

15. (Previously presented) The optical information recording method as claimed in claim 5, wherein the first index or the second index is corrected by using a detected value of a temperature or a change of the temperature near the optical recording medium based on desired temperature dependence.